

BOOK REVIEWS

Rangeland Hydrology, Farrel A. Branson, Gerald F. Gifford, Kenneth G. Renard, and Richard F. Hadley. Kendall Hunt Publishing Company, Dubuque, Iowa. 1981. 340 pages. \$15.00.

That over 40 percent of the earth's land surface falls in the broad category of rangeland is sufficient to dedicate a volume specifically to rangeland hydrology. Indeed, it is refreshing to find a regional hydrology textbook among the scores of process, model, and management oriented hydrology texts published during the last decade. The first, rather outdated edition of this introductory textbook has been superseded by this new version which includes three new topics: snow hydrology and snowpack management, urban impacts, and rangeland hydrologic models.

Six conventional hydrologic topics form the backbone of this book. These chapters deal with precipitation, interception, infiltration, runoff, erosion and water quality, and evaporation. They are preceded by a short introduction and are followed by four chapters - a section on geomorphology and the above mentioned three new topics.

A thorough identification of those hydrologic characteristics of rangelands which distinguish them from other environments is essential in such a treatise and would have been a welcome supplement to the short introduction. Chapter 2 is a thorough review of precipitation in semiarid areas excepting the section on modeling thunderstorm activity. Typical of other contributions in this text, this chapter includes a hefty and up-to-date reference list for which the authors are highly commended.

The chapter on interception is understandably very short, as is the one on urban impacts. The lack of basic data on either topic may explain their cursory nature, and they may have, therefore, been altogether deleted. It is questionable whether their inclusion is justified merely because interception should not be neglected where vegetation cover is considerable and because the discussion over the impacts of urbanization has become a modern 'essential' theme in all recent environmental texts. The state of the art on urban impacts in hydrology is unfortunately a set of few, if any, reliable conclusions.

Infiltration is described in a nontechnical, qualitative fashion quite exhaustively. A short quantitative treatment based on physics and a brief mention of the effect of offroad vehicles would have added substantially to this otherwise informative chapter. Runoff, treated next, is well written and includes the important topic of water harvesting in semiarid and arid areas.

Chapter 6, "Erosion, Sediment Yield and Water Quality," contains voluminous information on the first two subjects listed in the chapter heading. However, no physicochemical explanation is presented on the factors affecting erosion and a too lengthy citation from Heede's work on gullies (developed in forest land), including unclear statements and misconceptions, could have been altogether deleted. The chapter dealing with evaporation and transpiration, though nontechnical,

is also a concise statement of these processes and their character in rangelands.

Among the three new chapters, the one on snow hydrology and snowpack management deserves special mention for the lucid explanations, the logical structuring of the subject matter, and for the applied section on snowpack management. In comparison, the following chapter on geomorphology is too general and does not deal with several important themes such as the cause of gullying, rill erosion, and alluvial fan dynamics.

The closing chapter, "Rangeland Hydrologic Models," is a brave attempt to synthesize what is otherwise difficult to summarize in a large textbook. Hence, it may have benefited by merely introducing the topic, primarily by listing references, and thereafter reviewing more exhaustively several hydrologic models intended for rangelands.

Apart from drawing too uncritically from research on non-rangeland areas, confusing the reader with an unnecessary double system of units and unfortunately including over 200 errata, the book does a good job of introducing hydrology. Its valuable reference lists are only marred by the complete absence of Australian, Israeli, and other foreign studies. *Rangeland Hydrology* is primarily intended for rangeland scientists and managers. As such, it serves as the best available textbook on this subject.

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Reclaiming the American West: A Historiography and Guide, Lawrence B. Lee. ABC-Clío, Santa Barbara, California. 1979. xix + 131 n.p. \$16.50.

Reclamation in the west is a complex subject with a rich and colorful literature spanning several disciplines and over 100 years. Professor Lee divides his subject into a number of overlapping topics, beginning with the development of the early irrigation movement and ending with the conservationist-environmentalist and business challenges to the Bureau of Reclamation of the 1960's and 70's. Between these two chronological extremes there are sections devoted to the period 1902 through 1928 when the goal of reclamation was the encouragement of small scale family farming in arid areas, the era of large projects for water and power, and long sections on the contributions of engineers and historians which makes *Reclaiming the American West* an important work in intellectual history as well as public policy and engineering.

For Lee, the development of reclamation policy, as perhaps in few other areas of U.S. policy since 1900, arose out of an interaction between decisionmakers and those who maintained the intellectual debates on the issues through their writings. Of particular interest in this respect were men like John Wesley Powell, who was instrumental not only in stimulating public and official interest in western irrigation, but was also important for setting out in his writings the basis for the high design safety standards which were to characterize reclamation